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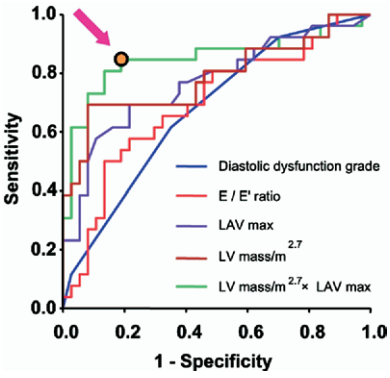
Interventional Cardiology

Treatment Strategies for Restenosis and Thrombosis in Drug-Eluting Stents

The rates of in-stent restenosis (ISR) and stent thrombosis (STH) are low for drug-eluting stents (DES), and few data exist to guide treatment. Mishkel and colleagues report their results from nearly 100 patients who underwent revascularization for ISR or STH. Approximately 60% of these patients were treated with a second similar DES (a DES sandwich), 20% with a different DES, and 20% with other techniques. Overall outcomes were poor, with 43% suffering a major adverse cardiac event during the next 12 months, and no strategy was clearly superior. This study demonstrates that ISR and STH with DES portend a high risk of subsequent events, and larger studies are needed to determine the optimal treatment. **See page 181.**



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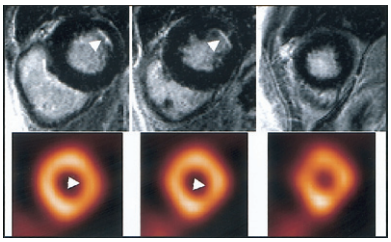
Heart Failure

Echocardiographic Measures to Predict Heart Failure With Preserved Ejection Fraction

Melenovsky and colleagues compared echocardiograms from demographically matched patients with heart failure with preserved ejection fraction (HFpEF), those with left ventricular hypertrophy but no heart failure, and control subjects. For most parameters, including diastolic dysfunction grade, there was significant overlap among the groups. Left ventricular mass index >71 g/m^2 and left atrial volume >83 ml were the best discriminators; combining the two into a novel index resulted in >80% sensitivity and specificity. This study identifies morphological characteristics that have better predictive ability than functional measures for the diagnosis of HFpEF. **See page 198. See figure.**



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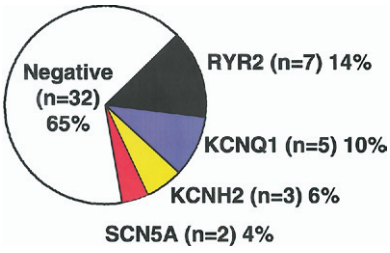
Cardiac Imaging

CMR More Sensitive Than SPECT for Detecting Small Infarcts

Although data have shown that infarct sizing with delayed enhancement cardiac magnetic resonance imaging (DECMR) is accurate, less information exists regarding its ability to detect small areas of myocardial necrosis. Ibrahim and colleagues studied 78 consecutive acute myocardial infarction patients with both DECMR and single-photon emission computed tomography (SPECT) 7 days after urgent percutaneous coronary intervention. DECMR was superior to SPECT in patients with a peak troponin T level <3.0 ng/ml, infarction in a non-anterior location, and non–Q-wave myocardial infarction. In this study, the improved spatial resolution and lack of attenuation defects with CMR resulted in superior detection of small myocardial infarctions. **See page 208. See figure.**



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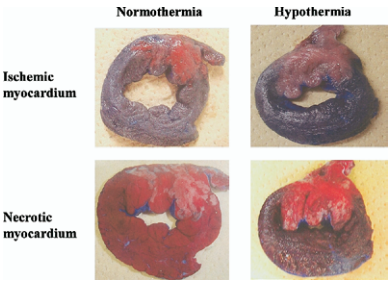

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Heart Rhythm Disorders

DNA Testing For Sudden Unexplained Death

Tester and Ackerman studied 49 cases of sudden death in young persons with no obvious etiology found at autopsy. The DNA segments were analyzed from all 8 genes implicated in either long QT syndrome (LQTS) (LQT1 to LQT6) or multisystem disorders involving either QT or QU prolongation. Ten LQTS-associated mutations were identified, 4 of which were novel. Seven others harbored a putative cardiac channel mutation in the *RyR2*-encoded calcium release channel. In this study of young patients with unexplained sudden death, over one-third had a mutation that may have produced a channelopathy responsible for their death. **See pages 240 and 247. See figure.**

Preclinical Research

Cold Intracoronary Infusion Reduces Ischemic Injury

Several lines of evidence suggest that hypothermia may protect from ischemic injury, yet systemic cooling seems to be limited by side effects. Otake and colleagues tested the ability of hypothermia to protect myocardium in a pig model of ischemia in which either room temperature or chilled saline was infused into the infarct vessel. Localized hypothermia resulted in fewer arrhythmias and smaller areas of necrosed myocardium than did room temperature saline, without obvious negative side effects. This study suggests that catheter-based infusion of cold saline may help to protect ischemic/reperfused myocardium. **See pages 250 and 261. See figure.**